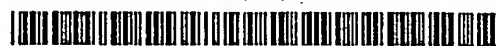


P-8575.03

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
1 November 2001 (01.11.2001)

PCT

(10) International Publication Number
WO 01/80757 A3

(51) International Patent Classification: **A61B 18/14,**
17/00

(21) International Application Number: **PCT/US01/13555**

(22) International Filing Date: **27 April 2001 (27.04.2001)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
09/559,604 **27 April 2000 (27.04.2000) US**

(71) Applicant: **MEDTRONIC, INC.** [US/US]; 710
Medtronic Parkway Northeast, Minneapolis, MN 55432
(US).

(72) Inventors: **FRANCISCHELLI, David, E.**; 744 Benton
Street, Anoka, MN 55303 (US). **KEOGH, James, R.**;
1201 Frank Court, Maplewood, MN 55109 (US). **JAHNS,**
Scott, E.; 923 3rd Street, Hudson, WI 54016 (US).

(74) Agents: **BAUER, Stephen, W. et al.**; Medtronic, Inc.
LC340, 710 Medtronic Parkway, Minneapolis, MN 55432
(US).

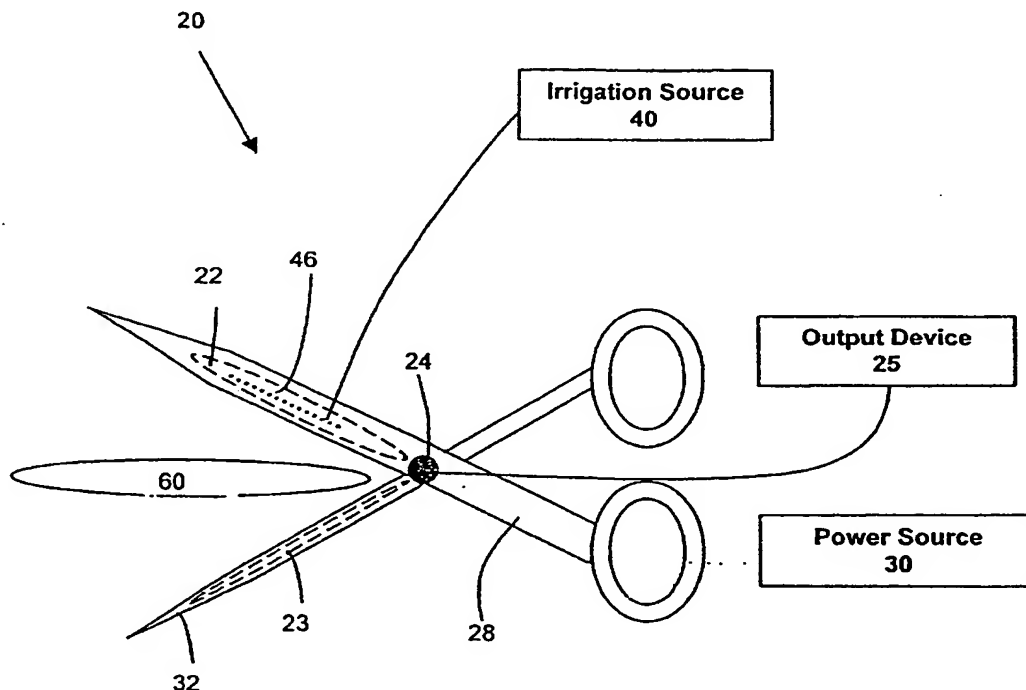
(81) Designated States (*national*): AE, AL, AM, AT, AU, AZ,
BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK,
DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,
IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,
LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT,
RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA,
UG, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

[Continued on next page]

(54) Title: **VIBRATION SENSITIVE ABLATION DEVICE AND METHOD**



(57) Abstract: An ablation apparatus including a maneuvering mechanism, a conductive element attached to the apparatus, a sensor attached to the apparatus and an output device in communication with the sensor is provided. The sensor senses vibration during the ablation procedure and sends a signal to the output device to reduce power to the conductive element.



WO 01/80757 A3



(88) Date of publication of the international search report:
21 March 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/US 01/13555

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61B18/14 A61B17/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 188 111 A (YATES DAVID C ET AL) 23 February 1993 (1993-02-23) column 4, line 42 - line 45; figure 1 column 7, line 66 - column 8, line 27; figure 4	1,5,6,9, 15,16, 34,36, 41,43
A	US 5 334 193 A (NARDELLA PAUL C) 2 August 1994 (1994-08-02) abstract; figures 4,5	12,15,37
A	GB 2 070 935 A (KENDALL & CO) 16 September 1981 (1981-09-16) page 2, line 6 - line 9; figure 2 page 2, line 52 - line 58 -/-	1,10,15, 16,34, 41,54

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

2 October 2001

Date of mailing of the international search report

29/10/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel.: (+31-70) 340-2040, Tx: 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Ducreau, F

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/US 01/13555

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 864 066 A (KIM TAE-HO) 26 January 1999 (1999-01-26) abstract	1, 11, 34
A	US 5 911 694 A (UCHIYAMA AKIO ET AL) 15 June 1999 (1999-06-15) abstract; figure 1A column 9, line 29 - line 34	1, 7, 16, 34, 53
A	US 5 443 463 A (STERN ROGER A ET AL) 22 August 1995 (1995-08-22) column 2, line 61 - line 64 column 3, line 58 - line 68; figure 1B column 5, line 27 - line 33 column 6, line 16 - line 23; figure 6 figures 1, 2B	1, 16, 34, 35, 41-45, 47-50, 54
A	US 6 042 580 A (SIMPSON JOHN A) 28 March 2000 (2000-03-28) column 1, line 55 - column 4, line 15; figure 1	1, 16
A	US 5 893 848 A (NEGUS CHARLES CHRISTOPHER ET AL) 13 April 1999 (1999-04-13) abstract; figures 1, 2	1, 16
A	US 5 836 311 A (MANSVELT BECK HENDRIOUS J ET AL) 17 November 1998 (1998-11-17) column 5, line 25 - line 45; figure 2B column 8, line 33 - line 42; figure 18 figure 1	1, 34, 35, 41-45, 47, 49-51, 54
A	US 5 840 075 A (MUELLER RICHARD L ET AL) 24 November 1998 (1998-11-24) column 4, line 23 - line 40; figures 2, 3, 3A	1, 34, 35, 41-45, 47, 49-51, 58
A	US 5 707 349 A (EDWARDS STUART D) 13 January 1998 (1998-01-13) column 5, line 60 - column 6, line 47 column 8, line 14 - line 27; figure 1	34-36, 41-45, 47-51, 53-61
A	US 5 927 284 A (GRUENDEMAN PAUL F ET AL) 27 July 1999 (1999-07-27) column 8, line 22 - line 42; figures 17, 18	1, 34, 35, 41

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PC1/US 01/13555

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5188111	A	23-02-1993	NONE	
US 5334193	A	02-08-1994	AU 5456394 A CA 2149310 A1 EP 0703803 A1 JP 8505544 T WO 9411059 A1	08-06-1994 26-05-1994 03-04-1996 18-06-1996 26-05-1994
GB 2070935	A	16-09-1981	AR 223917 A1 AU 538524 B2 AU 6793881 A BE 887809 A1 BR 8101369 A CA 1160525 A1 DE 3107704 A1 ES 500151 D0 ES 8203017 A1 FR 2477405 A1 IT 1142659 B JP 4028371 B JP 56139763 A MX 149731 A US 4517984 A ZA 8101512 A	30-09-1981 16-08-1984 10-09-1981 01-07-1981 08-09-1981 17-01-1984 24-12-1981 16-02-1982 01-06-1982 11-09-1981 15-10-1986 14-05-1992 31-10-1981 14-12-1983 21-05-1985 31-03-1982
US 5864066	A	26-01-1999	KR 165516 B1 CN 1158415 A DE 19649679 A1 GB 2310563 A , B JP 2872170 B2 JP 9236485 A	01-05-1999 03-09-1997 28-08-1997 27-08-1997 17-03-1999 09-09-1997
US 5911694	A	15-06-1999	JP 10062328 A JP 10123037 A JP 10099330 A JP 10104146 A	06-03-1998 15-05-1998 21-04-1998 24-04-1998
US 5443463	A	22-08-1995	US 5277201 A WO 9605776 A1 AU 7671594 A US 5562720 A AT 164503 T AU 4105293 A CA 2117900 A1 DE 69317776 D1 DE 69317776 T2 EP 0637943 A1 FI 945112 A IL 105523 A JP 7506033 T NO 944072 A US 5443470 A WO 9321846 A1 US 6041260 A US 5713942 A EP 0783274 A1 JP 10504485 T	11-01-1994 29-02-1996 14-03-1996 08-10-1996 15-04-1998 29-11-1993 11-11-1993 07-05-1998 10-09-1998 15-02-1995 31-10-1994 10-01-1997 06-07-1995 26-10-1994 22-08-1995 11-11-1993 21-03-2000 03-02-1998 16-07-1997 06-05-1998

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/13555

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6042580	A	28-03-2000	EP 1076521 A2 WO 9956645 A2	21-02-2001 11-11-1999
US 5893848	A	13-04-1999	EP 0949884 A1 JP 2000504971 T WO 9817185 A1	20-10-1999 25-04-2000 30-04-1998
US 5836311	A	17-11-1998	AU 7241496 A BR 9610670 A CA 2232580 A1 CN 1198664 A EP 0939605 A1 JP 11511366 T NO 981289 A WO 9710753 A1 US 6015378 A US 5927284 A	09-04-1997 06-07-1999 27-03-1997 11-11-1998 08-09-1999 05-10-1999 19-05-1998 27-03-1997 18-01-2000 27-07-1999
US 5840075	A	24-11-1998	NONE	
US 5707349	A	13-01-1998	US 5674191 A US 5456662 A AU 1968697 A AU 2135597 A AU 2278297 A AU 718288 B2 AU 6898896 A EP 0957796 A1 JP 2001501491 T US 6152143 A US 6179803 B1 WO 9730644 A1 WO 9730645 A1 WO 9730646 A1 WO 9730647 A1 US 6210355 B1 US 5728094 A US 5807308 A US 5738114 A US 5836906 A US 5800379 A US 5879349 A US 5730719 A US 5820580 A US 5817049 A US 6126657 A US 5843021 A AU 7007896 A NL 1003812 C2 NL 1003812 A1 WO 9706738 A1 US 5743870 A US 5514131 A US 5718702 A	07-10-1997 10-10-1995 10-09-1997 10-09-1997 10-09-1997 13-04-2000 10-09-1997 24-11-1999 06-02-2001 28-11-2000 30-01-2001 28-08-1997 28-08-1997 28-08-1997 28-08-1997 03-04-2001 17-03-1998 15-09-1998 14-04-1998 17-11-1998 01-09-1998 09-03-1999 24-03-1998 13-10-1998 06-10-1998 03-10-2000 01-12-1998 12-03-1997 02-07-1997 20-02-1997 27-02-1997 28-04-1998 07-05-1996 17-02-1998
US 5927284	A	27-07-1999	US 5836311 A AU 7241496 A BR 9610670 A	17-11-1998 09-04-1997 06-07-1999

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/13555

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5927284	A	CA 2232580 A1	27-03-1997
		CN 1198664 A	11-11-1998
		EP 0939605 A1	08-09-1999
		JP 11511366 T	05-10-1999
		NO 981289 A	19-05-1998
		WO 9710753 A1	27-03-1997
		US 6015378 A	18-01-2000

THIS PAGE BLANK (USPT